

CLAIMS

1. A viscoelastic support structure with improved energy absorption properties, comprising a rigid or semirigid frame (3), at least one layer (4) made of a resilient filler, a flexible covering (6) having a surface of contact (2) with the user, at least one gel insert (5) interposed between said covering (6) and said frame (3) to interact therewith when the user exerts a stress (P) thereon, characterized in that, 5 a plurality of protuberances (9) and/or recesses (10) is provided on said insert (5) and/or said frame (3) and/or said covering (6), with respect to a mid-surface (M), said insert being conformed to facilitate the deformation of said insert (5), in a direction transverse to the direction (L) of stress 10 (P) and/or essentially parallel to said mid-surface (M), to increase the energy that said insert (5) is able to dissipate.
2. A structure as claimed in claim 1, characterized in that 20 said protuberances (9) and/or said recesses (10) are provided on at least one surface (7, 7') of said insert (5).
3. A structure as claimed in claim 1, characterized in that 25 said protuberances (9) and/or said recesses (10) are provided on a top surface (8) of said frame (3), said top surface (8) facing toward said insert (5).
4. A structure as claimed in claim 1, characterized in that 30 said protuberances (9) and/or said recesses (10) are provided on a bottom surface (6') of said flexible covering (6), said bottom surface (6') facing toward said insert (5).
5. A structure as claimed in claim 1, characterized in that

said protuberances (9) have top surfaces (11) mainly extending along respective first lines.

6. A structure as claimed in claim 5, characterized in that
5 said recesses (10) have bottom surfaces (12) mainly extending along respective second lines.

7. A structure as claimed in claim 6, characterized in that
said first and second extension lines are curved and/or
10 straight.

8. A structure as claimed in claim 6, characterized in that
said protuberances (9) and/or recesses (10) have inclined
surfaces (13) for connecting said top surfaces (11) and said
15 bottom surfaces (12), with respective inclination angles (A)
relative to said mid-surface (M).

9. A structure as claimed in claim 8, characterized in that
said inclination angles (A) are of 5° to 85° and preferably
20 of about 45°.

10. A structure as claimed in claim 1, characterized in that
said filler layer (4) has an enlarged rear portion (14) for
supporting the buttocks of a user, a front horn portion (15)
25 and a central portion (16), said central portion (16) and/or
said rear portion (14) having at least one through cavity
(17).

11. A structure as claimed in claim 10, characterized in that
30 said at least one through cavity of said rear portion (14) is
placed at the ischial bones of the user.

12. A structure as claimed in claim 10, characterized in that

said insert (5) is received in said through cavity (17) of said central portion (16) and/or said rear portion (14).

13. A structure as claimed in claim 12, characterized in that
5 said insert (5) extends from said frame (3) to said flexible covering (6).

14. A structure as claimed in claim 1, characterized in that said gel material is essentially optically transparent.

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15. A structure as claimed in claim 1, characterized in that said flexible covering (6) has at least one essentially optically transparent portion (18).

15 16. A structure as claimed in claim 15, characterized in that said transparent portion (18) of said flexible covering (6) is located above said insert (5).

17. A structure as claimed in claim 15, characterized in that
20 said transparent portion (18) of said covering (6) is a separate portion, connected to the rest of said flexible covering (6) by suitable connection means.

18. A structure as claimed in claim 15, characterized in that
25 said transparent portion (18) is integral with the rest of said flexible covering (6).

19. A structure as claimed in claim 1, characterized in that
the base material of said frame (3) is polymeric and
30 essentially optically transparent to permit the passage of light through said covering (6), said gel insert (5) and said frame (3).

20. A structure as claimed in claim 1, characterized in that the base material of said frame (3) is a ligneous, metal or composite material, said frame (3) having at least one through hole, which is covered by a polymeric and essentially optically transparent layer.